S/051/60/008/06/0[illegible]/024
E201/E691

Isotopic Shift in the Spectrum of Neodymium

shift was practically independent of wavelength (Table 4). The mean relative shifts were: 1.00 (142-144), 0.87 (144-146), 1.04 (146-148), 1.42 (148-150) (cf. Table 4 and a figure on p 744). The inequality of the relative shifts of neodymium isotopes whose nuclei do not possess static deformation, may be due to non-uniform variations of the amplitudes of zero vibrations of the nuclear quadrupole moment. There are 1 figure, 4 tables and 9 references, of which 3 are Soviet, 2 English, 2 Dutch and 2 German.

SUBMITTED: November 5, 1959

Card 2/2

S/048/60/024/03/02/040
B006/B014

AUTHORS: Gromov, K. Ya., Dzhelepov, B. S., Dmitriyev, A. G., Morozov, V. A., Yakovlev, K. I.

TITLE: Conversion Electrons and Gamma Rays of Tu^{165}

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 3, pp. 272-277

TEXT: The article under review was read at the Tenth All-Union Conference on Nuclear Spectroscopy (Moscow, January 19 - 27, 1960). The authors studied the spectrum of the conversion electrons of Tu^{165} by means of a magnetic spectrometer of the type "Ketron". The relative half-width of the lines was 0.4 per cent, the light intensity of the instrument was 0.4 per cent. The γ-ray spectrum was taken by means of a γ-scintillation spectrometer. The half-width of the 661-kev Cs^{137} line was 12 per cent. In order to obtain Tu^{165} tantalum was bombarded with 660-Mev protons for 4 hours on the synchrocyclotron of the Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research) at Dubna. Then, the

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resulting elements were separated chromatographically The conversion-electron spectrum was studied in the range 85 - 1,200 kev. The spectra obtained are illustrated in Figs. 1 - 3. Each spectral region was taken three times every 25 - 35 hours. Thus, it was possible to distinguish the lines of Tu^{165} from the lines of other isotopes. The intensity of the lines was measured relative to the K-243 intensity. The resulting data permitted the identification of the following new γ-transitions: 279.0, 312.1, 366.0, (378.4), 389.4, 457.2, 460.4, 471.6, 488.2, (543.5), 566.0, 807.1, 1,133, 1,179, and 1,187 kev. Table 1 lists all data on the conversion-electron spectrum (E_e, H_ρ, relative intensity, identification, E_γ). The γ-spectrum obtained is shown in Fig. 4. The following γ-lines were recorded: (219-240), 296, 350, 450, 540, 810, and 1,170 kev. The relative intensities of these lines are compiled in Table 2. There are 4 figures, 2 tables, and 12 references, 6 of which are Soviet

S/048/60/024/007/014/032/XX
B019/B056

24.6720

AUTHORS: Basina, A. S. and Morozov, V. A.

TITLE: The 106-kev Transition in the Tu^{167} Nucleus

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960
Vol 24, No. 7, p. 817

TEXT: This paper was read at the 10th All-Union Conference on Nuclear Spectroscopy, which took place at Moscow from January 19 to January 27 1960. Using data obtained by Mihelich et al. (Ref. 1), the authors estimate the intensities of the transition in percents of decay for the 106 kev transitions of the $5/2^+$ level to the $3/2^+$ level ($E2 + M1$). The lutetium fraction was chromatographically separated from rare earths. The rare earths were obtained by the spallation of Ta. The daughter ytterbium was also separated. The conversion electron spectrum was investigated in a β-spectrometer having a resolution of roughly 1.9%. The separation of ytterbium took place 1 hour after separation of the lutetium fraction, i.e., about three hours after irradiation of the Ta-target. Thus the preparation mainly contained Yb^{167} (according to measurements carried out

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The 106-kev Transition in the Tu^{167} Nucleus

S/046/60/024/007/014/032/XX
B019/B056

by the authors, this isotope has a lifetime of 19±0.5 minutes) which is formed from Lu^{167} decay (lifetime 55 minutes). An intensive L-106 line had formerly been observed by Basina et al. (Ref. 3) in the conversion spectrum. Also, the relative intensities of the Yb^{167} L-106-lines and of the Tu^{167} K-208 lines (Ref. 4) had been measured earlier. Using data given by K. Ya. Gromov on the 208-kev transition of Er^{167} it is possible to calculate the intensity of the transitions in percents per decay for the 106-kev transition of Yb^{167}. The calculation was carried out by assuming that the last transition is a pure M1-transition. For the 106-kev transition of Tu^{167}, it yielded a value of 53% per decay. The analogous transition ($5/2^+ \longrightarrow 3/2^+$) in Tu^{169} (109 kev) amounts to 58% per decay. The authors thank K. Ya. Gromov for letting them have the data, and L. A. Yutlandov and B. A. Khalkin for the chemical part of the work performed. There are 5 references: 4 Soviet and 1 US.

ASSOCIATION: Radiyevyy institut im. V. G. Khlopina Akademii nauk SSSR (Radium Institute imeni V. G. Khlopin of the Academy of Sciences, USSR)

Card 2/2

5

83671

S/048/60/024/009/004/015
B013/B063

24.6720

AUTHORS: Baranov, V. I., Gromov, K. Ya., Dzhelepov, B. S., Zyong Chang-Bay, Malysheva, T. V., Morozov, V. A., Khotin, B. A., Chumin, V. G.

TITLE: The New Isotopes Ir^{184} and Pt^{187}

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 9, pp. 1079 - 1082

TEXT: The spectrum of the conversion electrons of the iridium fraction was analyzed by means of a β-spectrometer of the type Danish. This fraction is formed during the disintegration of gold bombarded with 660-Mev protons. Radiochemically pure iridium without carriers was separated from a bombarded gold plate weighing 1 ÷ 2 g (Ref. 1). The spectrum of the Ir conversion electrons showed some lines with a half-life of 3.1 ± 0.3 hours. These were identified as L-120; M-120; K-264; L-264; M-264; K-391 and L-391 transitions. Experimental data on these lines are collected in Table 1. The measured iridium spectrum (Series I) is shown in Fig. 1a, part of which is shown in a higher resolution in Fig. 1b. In addition, the L-, M-, and N-lines of the

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120-kev gamma transition were studied by means of a β-spectrometer with double focusing (of the type π√2) and increased resolution (Ref. 2). The data obtained are given in Table 2. They indicate that the observed gamma transitions take place in the even-even osmium nucleus (Figs. 2 and 3). On the strength of the data obtained, the authors suggest a decay scheme for Ir^{184} (Fig. 4). In addition to the above-mentioned lines, the iridium fraction contained numerous lines that belonged to other Ir isotopes: Ir^{186}, Ir^{185}, and Ir^{188}. Next, the determination of the half-life of Pt^{187} is described. The half-life of this isotope was found to be 2.0 ± 0.4 hours. For comparison, the half-life of the well-known isotope Pt^{186} was determined. Its half-life of 2.5 ± 0.3 hours is in good agreement with the results of Ref. 7. There are 4 figures, 2 tables, and 7 references: 3 Soviet.

Card 2/3

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo Akademii nauk SSSR (Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy of the Academy of Sciences USSR)
Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

Card 3/3

LITVINOV, V.P.; MOROZOV, V.A.

Infrared absorption spectra of mono- and diacylated thiophene homologues. Izv. AN SSSR. Otd. khim. nauk no. 1:166-168 Ja '61. (MIRA 14:2)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Thiophene—Spectra)

BASINA, A.S.; GROMOV, K.Ya.; DZHELEPOV, B.S.; MOROZOV, V.A.

Spectrum of the conversion electrons of the holmium fraction in the reaction Ta + p. Izv. AN SSSR. Ser. fiz. 25 no.2:194-198 F '61. (MIRA 14:3)

(Holmium--Isotopes)
(Tantalum)
(Nuclear reactions)

S/180/62/000/002/009/018
E040/E135

18.1235

AUTHORS: Ivanov, L.I., Matveyeva, M.P., Morozov, V.A., and Prokoshkin, D.A. (Moscow)

TITLE: On the self-diffusion of chromium

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo, no.2, 1962, 104-106

TEXT: In spite of the fact that chromium is widely used as an alloying element and that it serves as a basis of development of heat resistant alloys, its physico-chemical properties have not yet been fully investigated. Furthermore, such data as have been reported in technical literature are often very contradictory. For these reasons a re-examination was made of self-diffusion of chromium on specimens prepared from electrolytic chromium (99.96% pure) with nitrogen content of less than 0.010% and oxygen content of the order of 0.1%. The specimens were prepared by levitation melting and casting in copper moulds in an atmosphere of dry and purified helium. The specimens were in

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the form of rings 16 mm in diameter. After polishing, Cr^{51} was deposited on the specimen surface under a vacuum of 10^{-5} mm Hg. Care was taken to ensure an even thickness of the deposit of the radioactive chromium. Diffusion annealing was carried out at 1050-1400 °C in a special vacuum furnace in a corundum crucible, using simultaneously two specimens positioned face-to-face; the actual annealing temperature being controlled by means of two Pt/Pt-Rh thermocouples. The self-diffusion coefficient of chromium was determined by a method described previously by I.B. Borovskiy, Yu.G. Miller and A.P. Shcherbakov (Ref.8: Samodiffuziya v α-Fe. Issledovaniya po zharoprochnym splavam (Self-diffusion in α-Fe. Research in Heat Resistant Alloys). Izd-vo AN SSSR, 2, 1957, 208) and by L.I. Ivanov and N.P. Ivanichev (Ref.9: Izv. AN SSSR, OTN, no.8, 1956). A layer with a thickness of about 10 microns was removed at each stage, the thickness of the layer thus removed being controlled with an accuracy of ± 0.001 mm. The radioactivity determination was on filter paper moistened with a 15% NaCl solution using scintillation counters and reference standards. The test results

are plotted as log I vs. x^2 curves (I = intensity of radiation and x = distance from the specimen surface). Coefficients of volume diffusion of chromium were calculated from the above curve and are reported for various temperatures. The temperature dependence of chromium self-diffusion was found to obey the following relation:

$$D = 0.0647 \exp\left(\frac{-59200}{RT}\right) \quad (1)$$

where R - universal gas constant and T - temperature. Investigation of the self-diffusion of chromium is also of great interest because chromium has a body-centred crystal lattice structure. If it is assumed that the vacancy mechanism of self-diffusion holds true for body-centred crystal lattice metals, it can be shown that

$$D_o = a^2 v \exp\left(\frac{\Delta S}{R}\right) \quad (3)$$

where: D_o - self-diffusion velocity; a - lattice constant; v - atom oscillation frequency; ΔS - entropy of self-diffusion activation; R - gas constant. The entropy calculated in the

present investigation was positive although negative entropies of chromium self-diffusion activation were previously reported by otner workers. However, it was also shown previously that ΔS cannot be negative for metals with cubic crystal lattice structure if the energy of activation of self-diffusion exceeds 10 kcal/g.atom and if the vacancy mechanism of self-diffusion is assumed to apply.
There are 3 figures and 2 tables.

SUBMITTED: July 17, 1961

MOROZOV, Vasiliy Andreyevich; [illegible]

Volodymyr Petrovych Zatonskyi. [illegible] Ukrainy,
1964. 132 p. [illegible]

L 2743-66 EWT(m)/EWP(t)/EWP(b) DIAAP/ASD(c) JD/JG

ACCESSION NR: AP5024328 UR/0367/65/002/002/0204/0210

AUTHOR: Basina, A. S.; Bedike, T. ; Gromov, K. Ya.; Dzhelepov, B. S.; Morozov, V. A.; Novgorodov, A. F.

TITLE: γ-Rays from Tu^{164}. The 0^+-level in Er^{164}

SOURCE: Yadernaya fizika, v. 2, no. 2, 1965, 204-210

TOPIC TAGS: thulium, erbium, radioisotope, gamma ray, radioactive decay scheme

ABSTRACT: The coefficients of internal conversion are found for several transitions in Er^{164} by comparison of the experimentally determined relative intensities of γ-rays from Tu^{164} with the intensities of conversion lines given in the literature. The method of isotope separation is briefly described. A γ-scintillation spectrometer with a 40 × 40 mm thallium-activated sodium iodide crystal was used for measuring the γ-spectrum. The measurements were begun approximately six minutes after separation of the Tu. The spectrum was graphically analyzed to determine the relative intensities of the γ-rays. The results are tabulated for energies from 500 to 2500 kev and compared with data in the literature on the spectrum of conversion electrons in this energy region. The decay scheme for Tu^{164} is

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L 2743-66
ACCESSION NR: AP5024328

briefly discussed (see fig. 1 of the Enclosure). The experiment shows that the multipole order of the 773 kev transition is *E2* with possibly a slight admixture of *M1* (no more than 20% *M1*). It is assumed that the 1248 kev transition belongs to the 0^+-0^+ category. In this case, the 1157 kev transition from the 1248 kev level to the first excitation level of the ground state rotational band should be an *E2* transition. It is found that the γ-vibrational level (2^+) in Er^{164} has an energy of 862 kev. The 0^+ level observed at 1248 kev may be the first level in the β--vibrational band in Er^{164}. This value agrees well with the theoretically calculated value of ∿1.3 Mev. Orig. art. has: 3 figures, 3 tables.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research); Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: 12Mar65 ENCL: 01 SUB CODE: NP

NO REF SOV: 007 OTHER: 002

Card 2/2

L 13833-66 EWT(m)/EWP(t)/EWP(b) DIAAP/LIP(c) JD/JG

ACC NR: AP6002679 SOURCE CODE: UR/0048/65/029/012/2225/2230

AUTHOR: Bedrosyan, P.: Bedike,T./ Demma,I./ Zaytseva,N.G./ Morozov,V.A.

TITLE: Gamma spectra of neutron deficient Os and Re isotopes/Transactions of the Fifteenth Annual Conference on Nuclear Spectroscopy and Nuclear Structure held at Minsk 25 January to 2 February 1965/

SOURCE: AN SSSR. Izvestiyal Seriya fizicheskaya. v.29, no. 12, 1965, 2225-2230

TOPIC TAGS: gamma spectrum, osmium, rhenium, beta decay,

ABSTRACT: Gamma spectra of short-lived Os^{2} and Re^{2} isotopes were investigated in order to improve or correct existing data. The instruments employed were a 40 x 40 mm NaI crystal scintillation spectrometer with a resolution of 10% at 662 keV and a fast-slow gamma-gamma coincidence spectrometer with a resolving time of 10 nanosec. The source was the osmium fraction from a gold target bombarded for 30 minutes with 660 MeV protons. Rhenium was repeatedly separated from the osmium source to serve as the rhenium source. Analysis of the osmium decay curve showed the presence of activities with half-lives of approximately 23 min, 90 min, and 23 hr. Gamma lines with half-lives less than 2 hr were observed at 120, 190, 240, 310, 510, 800, and 880 keV. It was not in general possible to assign definite helf-lives to the different lines, but the decay of the intense 240 keV line was found to be complex with the two half-lives: ~30 min and 90 ± min. A gamma spectrum recorded 14 hours after separation of the osmium showed lines at 115, 180, 385, and 510 keV. Gamma-gamma coincidence measurements were undertaken in the 510 keV region. No coincidences were observed at 90°

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L 13833-66

ACC NR: AP6002679

but coincidences were observed at 180°. The 510 keV line is accordingly ascribed to annihilation radiation. The decay of the annihilation radiation was complex, with half-lives of 23 ± 3 min and 3 ± 0.5 hr. The rhenium separated from the osmium source 38 min after beginning of accumulation decayed with two half-lives; 22 ± 3 min and 21 ± 2 hr. Associated with the short-lived activity there were observed gamma lines at 90, 135, 210, 260, 315, 440, 510, 600, 680, 760, 840, and 940 keV. Associated with the long-lived activity there was observed a gamma line at 365 keV; this activity is accordingly ascribed to Re^{181}. The present data are compared with the findings of Yu.Surkov, G.M.Chernov, A.K.Lavrukhina, and Z.V.Kromchenko (Izv. AN SSSR. Serv.fiz., 24, 119 (1960)), T.V.Malysheva, and B.A.Khotin (Izv. AN SSSR. Ser. Fiz., 25, 1256 (1961)), and I.S.Foster, I.W.Hilborn, and L.Yaffe (Canad. J. Phys.,36, 555 (1958)), and numerous points of agreement and disagreement are noted. The principal conclusion of the ensuing discussion is that the gamma spectrum of radioactive osmium is considerably more complex than was indicated by the findings of Surkov et al. (loc.cit.) and that further investigation of both the osmium and rhenium activities is necessary. The authors thank K.Ya.Gromov for discussing the results and T.M.Muminov for assisting with the measurements. Orig. art. has: 6 figures and 1 table.

SUB CODE: 18/ SUBM DATE: none ORIG. REF: 005 OTH REF: 001

Card 2/2

PASHINA, A.S.; BEDIKE, T.; GROMOV, K.Ya.; DZHELEPOV, B.S.; MOROZOV, V.A.; NOVGORODOV, A.F.

Gamma rays from Tl^{204}. A level of the type 0^+ in Er^{204}. Izv. fiz. no.3:204-210 Ag '65. (MIRA 18:8)

1. Ob"yedinennyy institut yadernykh issledovaniy i L[illegible] gosudarstvennyy universitet.

ACC NR: AP6018950 SOURCE CODE: UR/0367/65/002/006/0966/0973

AUTHOR: Vasina, A. S.; Zemlo, T.; Zemov, A. Ya.; Zholopov, I. S.; Tobocov, N. A.; Voronov, V. A.; Novikov, [illegible]

ORG: Joint Institute of Nuclear Studies (Obʺyedinennyy institut yadernykh issledovaniy); Leningrad State University (Leningradskiy gosudarstvennyy universitet)

TITLE: Decay of Pr sup 138 [This paper was given at the 14th Annual Conference on Nuclear Spectroscopy, Tbilisi, February 1964.]

SOURCE: Yadernaya fizika, v. 2, no. 6, 1965, 966-973

TOPIC TAGS: radioactive decay, praseodymium, gamma spectrum, conversion electron spectrum, cerium

ABSTRACT: The γ-spectrum, $\gamma\gamma$- and $\beta^+\gamma$ - coincidence spectra, and the conversion electron spectra of praseodymium samples obtained from Ta, Te, and Er irradiated with 660 Mev protons were measured. The relative intensities of the γ- transitions with energies of 303, 789, and 1047 kev, observed in the γ-spectrum of Pr^{138}, were determined and tabulated. The $\gamma\gamma$-coincidence experiments give evidence of a cascade of transitions having the energies of 303-1047-789 kev. Measured $\beta^+\gamma$- coincidences did not confirm the existence of the β^+ decay of Pr^{138} to the 1840 kev level. The conversion electron transitions of 303 ± 1 and 789 ± 3 kev were investigated

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on a lens-type beta spectrometer. The internal conversion coefficients $\alpha_{K303} = 0.14 \pm 0.02$ and $\alpha_{K769} = 3.42 \times 10^{-3}$ were determined. The first coefficient indicates that the 303 kev transition is type E3, while the second does not contradict the assumption that the 789 kev transition is purely E2. The quantum characteristics of the excited states of Ce^{138} are discussed. Orig. art. has: 3 figures and 4 tables. [Based on authors' Eng. abst.] [JPRS]

SUB CODE: 20 / SUBM DATE: 06Mar65 / ORIG REF: 004 / OTH REF: 005

KHOZOV, V. A. (Viktor Alekseyevich)

"Sterility in large-horned cattle and methods for controlling it."

In the collection : MICHURIN SCIENCE - Practice of Animal Husbandry, Novosibirsk, 1949, pp 71-82

So: Letopis' Zhurnal'nykh Statey, 1949, item 25992 Unclas.

MOROZOV, V.A.

USSR/Farm Animals - Small Horned Stock. Q-4

Ref Jour : Ref Zhur - Biol., No 1, 1958, 2597

Author : V.A. Morozov.
Inst :
Title : Theoretical Bases and Practical Aspects of an Artificial Insemination of Sheep in the Open Air.

Orig Pub : Tr. In-ta zhivotnovodstva, Dagest. fil. AN SSSR, 1956, 4, 5-25

Abstract : Describes a field unit for the performance of artificial insemination. This unit was designed and assembled by the author. It is adapted for transportation in saddle bags for the administration of artificial insemination in the open areas of Dagestan. The spermatozoons can be preserved from damage by cold weather by placing them in a container with double walls, or by wiping the interior of the container with egg-yolk before the material for artificial insemination is placed in the container. States

Card 1/2

Q

COUNTRY : USSR
CATEGORY : Farm Animals. Sheep

ABS. JOUR. : RZBiol., No. 13, 1958, No. 59552

AUTHOR : Morozov, V. A.
INST. : -
TITLE : Storage of Ram Semen under Refrigeration

ORIG. PUB. : Ovtsevodstvo, 1957, No 10, 30-33

ABSTRACT : Two variants of preservation of ram semen in a refrigerated state are described: one with the use of hypertonic solutions and another in an agar-agar capsule. Although the use of hypertonic solutions in freezing semen is highly estimated by the author, he acknowledges that many things in the proposed technique require a thorough check.

CARD: 1/1

Q

Country : USSR
CATEGORY : Farm Animals. Sheep

ABS. JOUR. : RZBiol., No. 13, 1958, No. 59553

AUTHOR : Morozov, I. A.
INST. : All-Union Academy of Agricultural Sciences*
TITLE : Storage of Ram Semen in a Refrigerated State by Means of Hypertonic Solutions

ORIG. PUB. : Dokl. VASKhNIL, 1957, No 11, 43-45

ABSTRACT : The freshly obtained ram semen was diluted with a hypertonic diluent of the following composition: distilled water 100 ml., anhydrous glucose 4 g., trisubstituted sodium citrate 4 g., hen's egg yolk 30 ml., pure glycerin 16 g. The best dilution ratio was 5-20 fold. Thereafter, semen was poured into paraffinized paper capsules with a capacity of 3-4 ml., which were placed into a penicillinized flask with a rubber stopper. Semen

* imeni Lenin

CARD: 1/3

Q

COUNTRY : USSR
CATEGORY : Farm Animals. Sheep

ABS. JOUR. : RZBiol., No. 13, 1958, No. 59553

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT cont'd. : thus packed was placed on melting ice where it was kept for about 6 hours, whereupon it was transferred to an ice-salt mixture and left for three days at a temperature of minus 20-21.5°. To thaw semen, 20-40 min. and a temperature of 27-30° is needed, whereupon not less than 60% of the spermatozoa are observed to have a rectilinear, actively-progressive motion. In a second series of ex-

CARD: 2/3

MOROZOV, Viktor Alekseyevich (Dagestan Sci Res Inst of Agriculture) for Doctor of Biological Sciences on the basis of dissertation defended 9 Dec 59 in Council of All-Union Sci Res Inst of Animal Husbandry, entitled: "Storage and Transportation of Semen in Artificial Insemination of Large-Horned Cattle and Sheep." (BMViSSO USSR, 2-61,25)

MOROZOV, V.A.

Stenosmotic properties of livestock spermatozoans. Zhur.ob. biol. 20 no.2:128-132 Mr-Ap '59. (MIRA 12:5)

1. Daghestan Research Institute of Agriculture, Makhach-Kala.
(SPERMATOZOA) (OSMOSIS)

MOROZOV, V.A., kand.biolog.nauk

Solving the problem of the preservation of farm animal semen in a frozen state. Zhivotnovodstvo 21 no.7:66-72 Je '59.
(MIRA 12:9)

1. Dagestanskiy nauchno-issledovatel'skiy institut sel'skogo khozyaystva.
(Semen)

MOROZOV, V.A., kand. biol. nauk

Apparatus for automatic cooling and dilution of semen. Zhivotn. vodstvo 21 no.11:72-74 N '59 (MIRA 13:3)

1. Dagestanskiy nauchno-issledovatel'skiy institut sel'skogo khozyaystva.
(Semen) (Veterinary instruments and apparatus)

MORCZOV, V.A.

Mosquitoes (Culex pipiens L.) feeding on human blood in the surroundings of Krasnodar. Med. parazit. i parazit. bol. 34 no.1:24-29 Ja-F '65. (MIRA 18:8)

1. Krasnodarskaya kraynaya sanitarno-epidemiologicheskaya stantsiya.

L 27209-66 EWT(1)

ACC NR: AP6011565 SOURCE CODE: UR/0051/66/020/003/0491/0493

AUTHOR: Morozov, V. A.

ORG: none

TITLE: Contribution to the theory of beats in secondary radiation

SOURCE: Optika i spektroskopiya, v. 20, no. 3, 1966, 491-493

TOPIC TAGS: light modulation, interference light modulator, quantum generator, photo emission, secondary emission, quantum theory

ABSTRACT: The author proposes a quantum-theoretical explanation of a phenomenon, observed experimentally by Ye. B. Aleksandrov (Opt. i spektr. v. 14, 436, 1963), wherein light modulated in intensity and having a broad spectrum, is transformed into secondary radiation, which is also modulated, under the influence of having two excitation levels. This interference produces intensity beats which have a definite polarization and whose amplitude has a resonant maximum when the modulation frequency equals the frequency of transition between the excitation levels. The analysis shows that the secondary photons are described by superimposed wave functions which have the same initial phase shift as the incident photons, this explains why modulation of the intensity of the incident

Card 1/2 UDC: 539.184.001.1

L 27209-66

ACC NR: AP6011565

2

radiation leads to modulation of the secondary radiation. The author thanks P. P. Shorygin and L. L. Krushinskiy for a discussion of the results. Orig. art. has: 6 formulas.

SUB CODE: 20/ SUBM DATE: 23Apr65/ ORIG REF: 003/ OTH REF: 003

Card 2/2

L 29840-66 EWT(d) IJP(c)

ACC NR: AP6011648 SOURCE CODE: UR/0020/66/167/003/0510/0512

AUTHOR: Morozov, V. A.

ORG: Moscow State University (Moskovskiy gosudarstvennyy universitet)

TITLE: Solution of functional equations by the method of regularization

SOURCE: AN SSSR. Doklady, v. 167, no. 3, 1966, 510-512

TOPIC TAGS: operations research, regularization method, control theory, functional analysis, computational method

ABSTRACT: A study is made of the problem R of determining the solution $u \in U$ of the equation $Au = f$, where $f \in F$, U and F are two functional spaces, $A[U] \to F$, and $Au_1 = Au_2$ only in the case where $u_1 = u_2$. If the problem R has a solution for any given function $f_\delta \in F$, $0 < \|f - f_\delta\|_F \leqslant \delta$, it can be shown that there is at least one function $\tilde{f} \in F$ such that: a) the equation $Au = f_\delta$ has a solution $\tilde{w}_\delta = R[f_\delta]$; b) for any $\epsilon > 0$ it can be shown that $\delta_0 = \delta_0(\epsilon) > 0$ so that for all δ, $0 < \delta \leqslant \delta_0(\epsilon)$, the inequality $\|\tilde{w}_\delta - u\|_U < \epsilon$ holds. Under these conditions the problem R is said to reach a stable solution. Five theorems are stated and demonstrated. These theorems establish the relationship between the concept of the stable method of solution of the problem and the concept of the regularization algorithm (see A. N. Tikhonov, DAN, 153, No. 1, 1963). A necessary and sufficient condition for solution stability is discussed and the existence and uniqueness of the solution of a variational problem are established.

Card 1/2

UDC: 517.948.35

L 29840-66

ACC NR: AP6011648

The given theorems and results are comparable to those presented by A. N. Tikhonov (DAN, 156, No. 2, 1964). This paper was presented by Yu. N. Rabotnov on 30 June 1965. Orig. art. has: 6 equations.

SUB CODE: 12/ SUBM DATE: 24Jun65/ ORIG REF: 009/ OTH REF: 001

Card 2/2

KOTEL'NIKOV, V.A.; DUBROVIN, B.M.; MOROZOV, V.A.; RZHIGA, O.N.; SHAKHOVSKOY, A.M.

Using Doppler effect in determining orbit parameters of artificial earth satellites. Isk.sput.Zem. no.1:50-61 '58. (MIRA 12:2)

(Artificial satellites)

SOV/109-3-7-27/37

AUTHORS: Kotel'nikov, V. A., Dubrovin, V. M., Gorozov, V. A., [illegible] O. N., Shakhovskoy, A. M.

TITLE: Application of the Doppler Effect for the Determination of the Orbital Parameters of the Artificial Earth Satellites (Ispol'zovaniye effekta Dopplera dlya opredeleniya parametrov orbity iskusstvennykh sputnikov zemli)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Nr 7, pp 1071-1081 (USSR)

ABSTRACT: The frequency shift produced by the Doppler effect as a result of the motion of an earth satellite is appreciable enough to be employed in the evaluation of the time when the satellite is at a minimum distance from the point of observation (the receiver), and the corresponding air-to-ground distance and velocity. In the first approximation it can be assumed that the path of the satellite is linear (see Fig.1), so that its distance from the receiver can be expressed by:

$$r = \sqrt{r_0^2 + v_0^2 \Delta t^2} \qquad (1)$$

where $\Delta t = t - t_0$, where t_0 is the instant when the

satellite is at the point B and r_0 is the corresponding air-to-ground distance. The frequency shift due to the Doppler effect is expressed by:

$$\Delta F = -\frac{1}{\lambda}\frac{dr}{dt} = -\frac{v_0}{\lambda}\frac{\Delta t}{\sqrt{\Delta t^2 + \left(\frac{r_0}{v_0}\right)^2}} \qquad (\ )$$

Eq.(2) was used to plot a number of curves for a satellite transmitter operating at $f_0 = 40$ Mc/s for various values of r_0 and v_0, where v_0 is the average velocity of the satellite. The curves are shown in Figs.2 and 3 where ΔF is in c/s and Δt in sec. The instant of the maximum approach (or minimum distance) of the satellite can be determined from the curves of Figs.2 and 3, bearing in mind that

Application of the Doppler Effect for the Determination of the Orbital Parameters of the Artificial Earth Satellites

they are symmetrical with respect to f_o (as shown in Fig.4); t_o is simply evaluated by constructing a secant which intersects the curve at a point O in such a way that its segments between O and two other intersecting points are equal (see Fig.4). The instant of maximum approach can also be determined analytically by approximating the frequency-time curve by means of straight lines (as shown in Fig.5), but this procedure is less accurate. Eq.(2) can also be written as Eq.(11). If this equation is plotted in Δt^2 and $\Delta t^2/\Delta f^2$ coordinates a straight line is obtained (see Fig.6) which intersects the coordinates at a and b; it is thus possible to determine the average velocity v_o and the minimum distance r_o. These quantities are expressed by Eqs.(14) and (15) respectively. If the motion of the satellite is rectilinear but is subject to an acceleration a_o, the distance between the transmitter and the receiver is given by Eq.(16), and the frequency shift is expressed by Eq.(17). If the acceleration a_o is

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comparatively small (as was the case with the two Soviet satellites) the frequency shift is expressed approximately by Eq.(18). The presence of acceleration destroys the symmetry of the frequency-time curve (see Fig.7) so that the time of maximum approach, when determined from such a curve, is subject to an error. The magnitude of the error δt for various distances is plotted in Fig. . The parameters of a satellite can be determined more accurately if its trajectory is assumed to be curvilinear (see Fig.); here the true trajectory is represented by curve 1, the approximate curvilinear trajectory by curve 2 and the tangent to the orbit by straight line 3; the centre of the approximate trajectory is situated at point C and its radius vector is equal to R_0 . The distance between the satellite and the receiver can then be expressed by Eq.(1). If the motion of the satellite is uniform, the angle θ is equal to

Application of the Doppler Effect for the Determination of the Orbital Parameters of the Artificial Earth Satellites

by Eq.(21) so that the frequency shift is given by Eq.(22). If θ is comparatively small the frequency shift is given approximately by Eq.(23). Experimentally, the task of determining the orbital parameters of the satellites by the Doppler effect was carried out by the Institute of Radio Engineering and Electronics of the Soviet Academy of Sciences at a frequency of 40 Mc/s. The actual time-frequency curve taken on October 10, 1957, is shown in Fig.10. The graphical method was used for determining t_o, r_o and v_o and the results are shown in the table on p. 860 and in Fig.11. It was found that the errors in determining t_o were 0.2 to 1 sec, while v_o and r_o could be determined

Application of the Doppler Effect for the Determination of the Orbital Parameters of the Artificial Earth Satellites

with an error of 3 to 5%. There are 14 figures.

ASSOCIATION: Institut radiotekhniki i elektroniki AN SSSR (Institute of Radio Engineering and Electronics of the Soviet Academy of Sciences)

SUBMITTED: April 11, 1958.

1. Satellite vehicles trajectories--Mathematical analysis 2. Doppler navigation systems--Applications

Card 1/1

AUTHOR: Morozov, V. SOV/107-59-1-38/51

TITLE: The Elimination of A-C Hum in the A-F Amplifiers (Ustraneniye fona peremennogo toka v usilitelyakh nch,

PERIODICAL: Radio, 1959, Nr 1, pp 45-47 (USSR)

ABSTRACT: The author analyses the causes of a-c hum in the a-f amplifiers and discusses methods of their elimination. There are five circuits.

Card 1/1

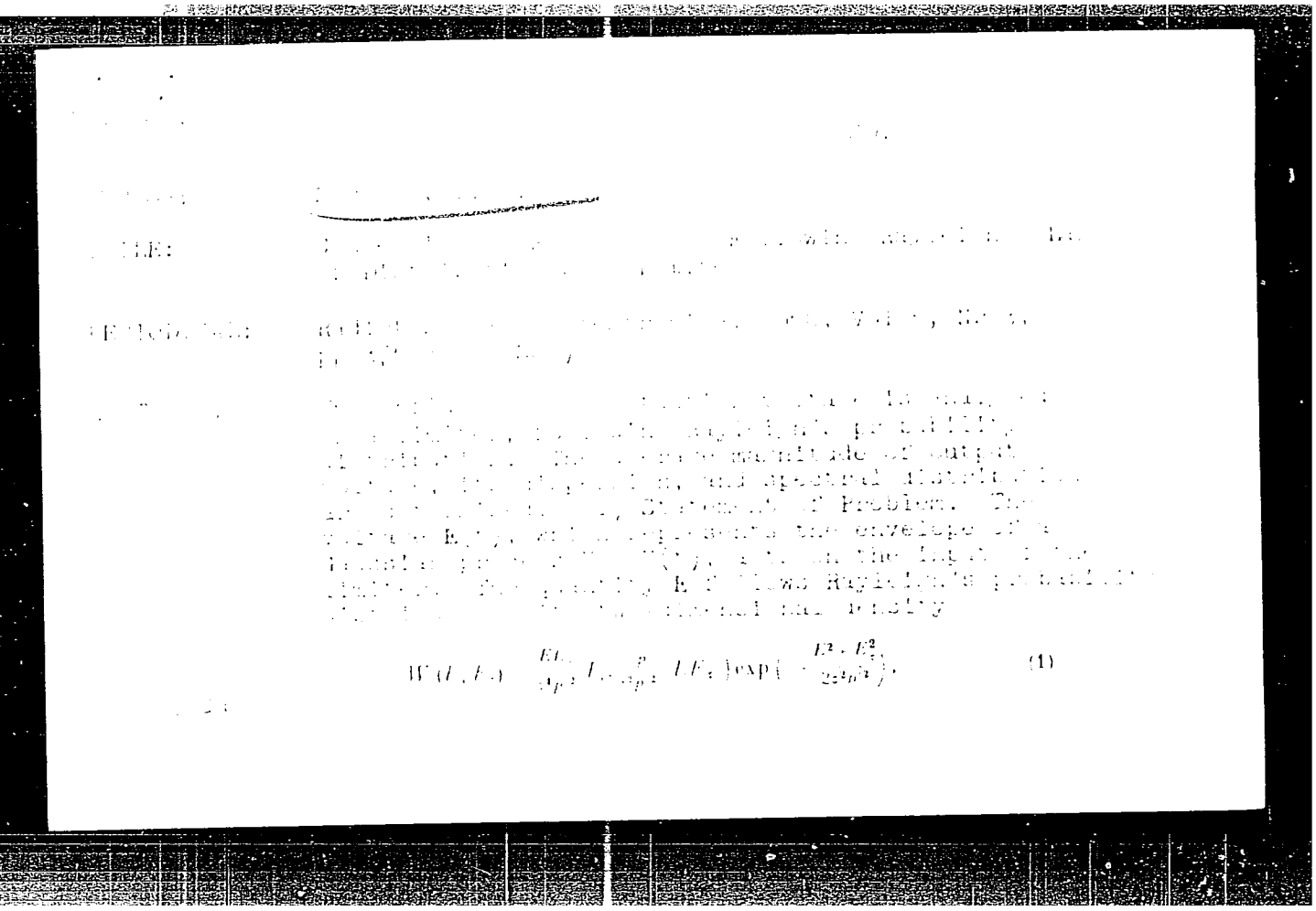
MOROZOV, V.

Radio receiver with an RC coupled high-frequency amplifier. Radio no.5:48 My '60. (MIRA 13:12)
(Transistor radios)

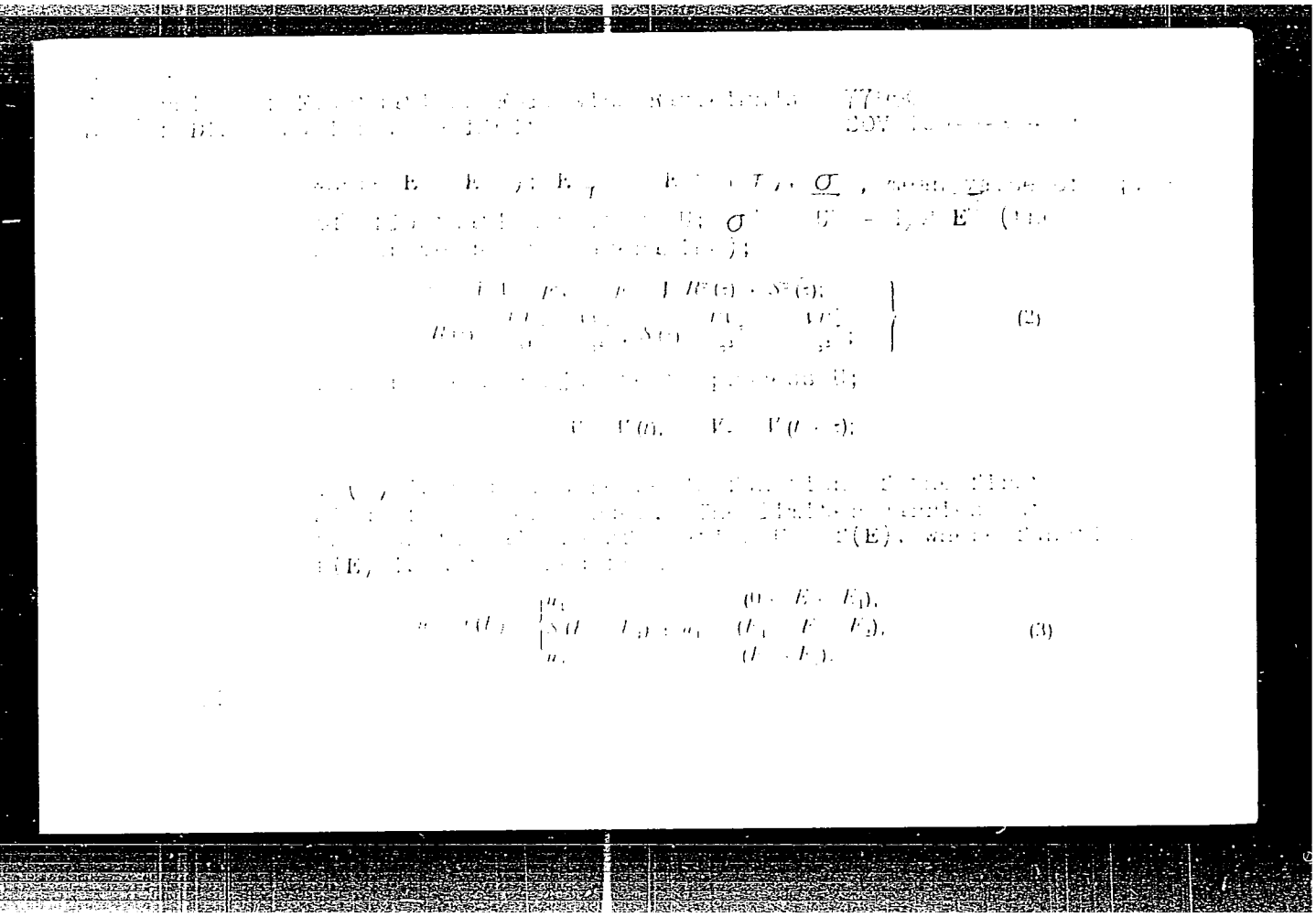
LUK'YANOVA, L.; LOMAKIN, L.; MOROZOV, V.

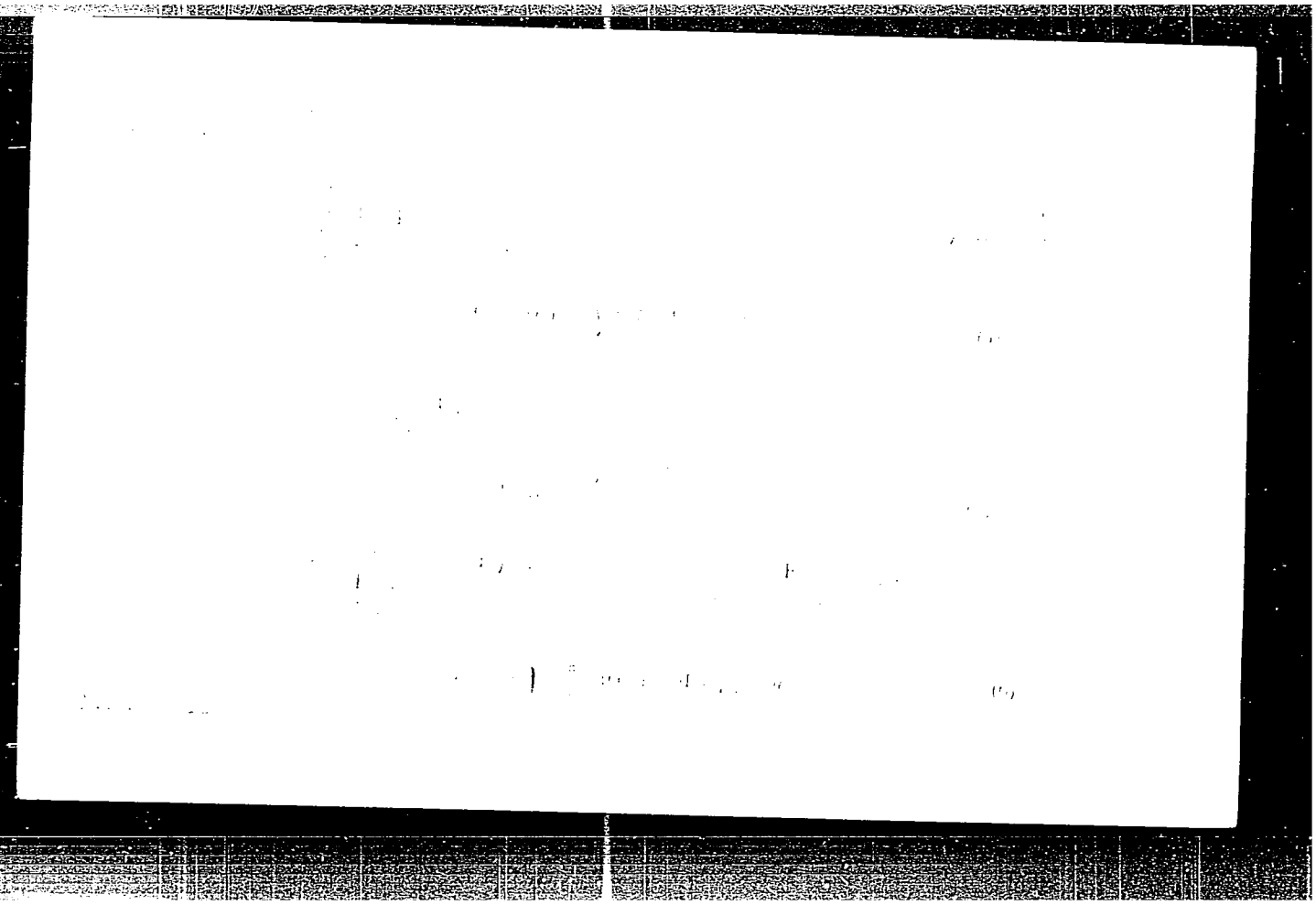
Three simple superheterodyne receivers. Radio no.8:34-39 Ag '60. (MIRA 13:9)

(Radio--Receivers and reception)

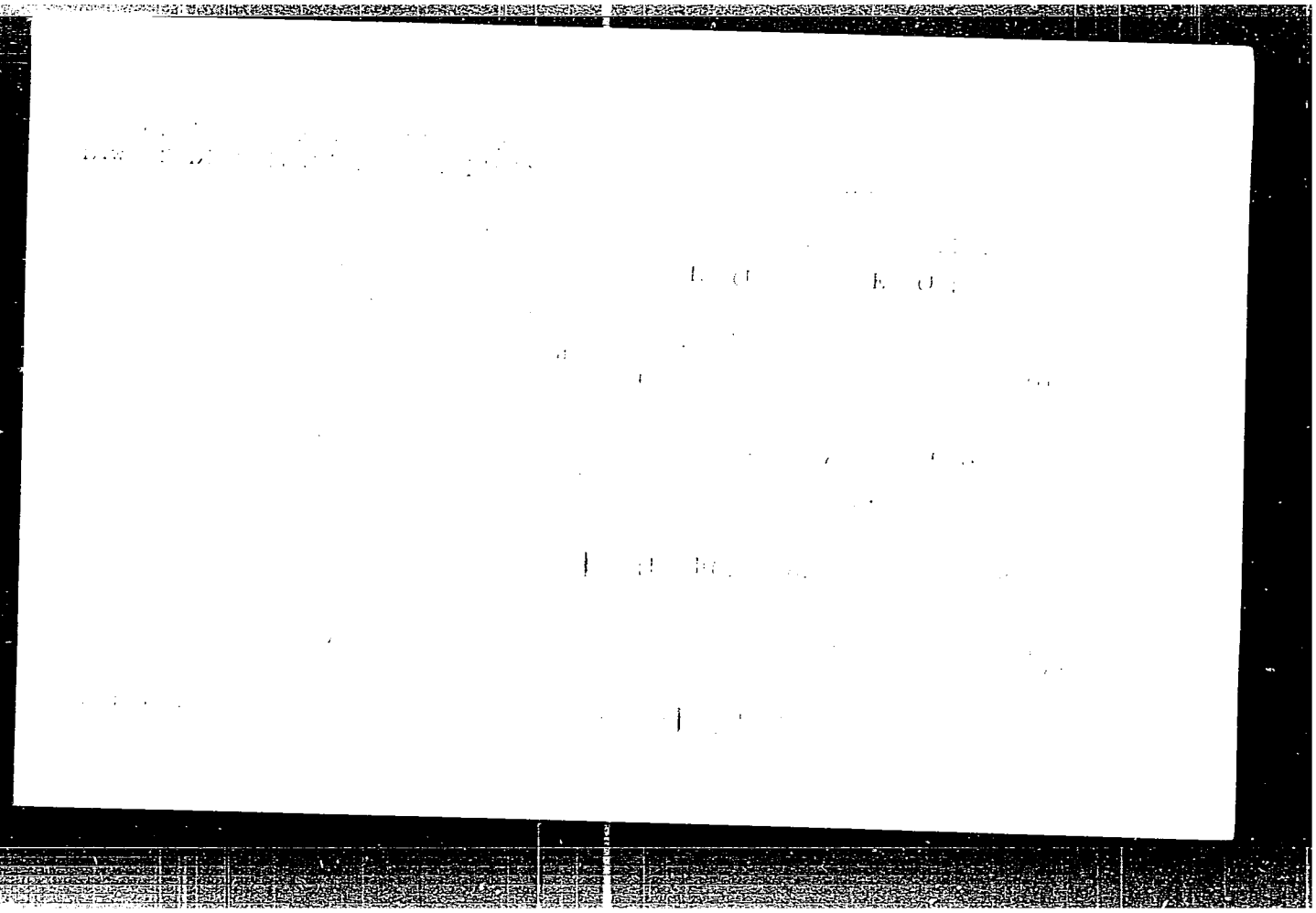


$$W(I, I_0) \quad \frac{EI_0}{\sigma_p^2} I_{\sigma_p^2}\left(\frac{I}{\sigma_p^2}\right) \exp\left(-\frac{I^2 + E_0^2}{2\sigma_p^2}\right), \qquad (1)$$





APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220015-1"

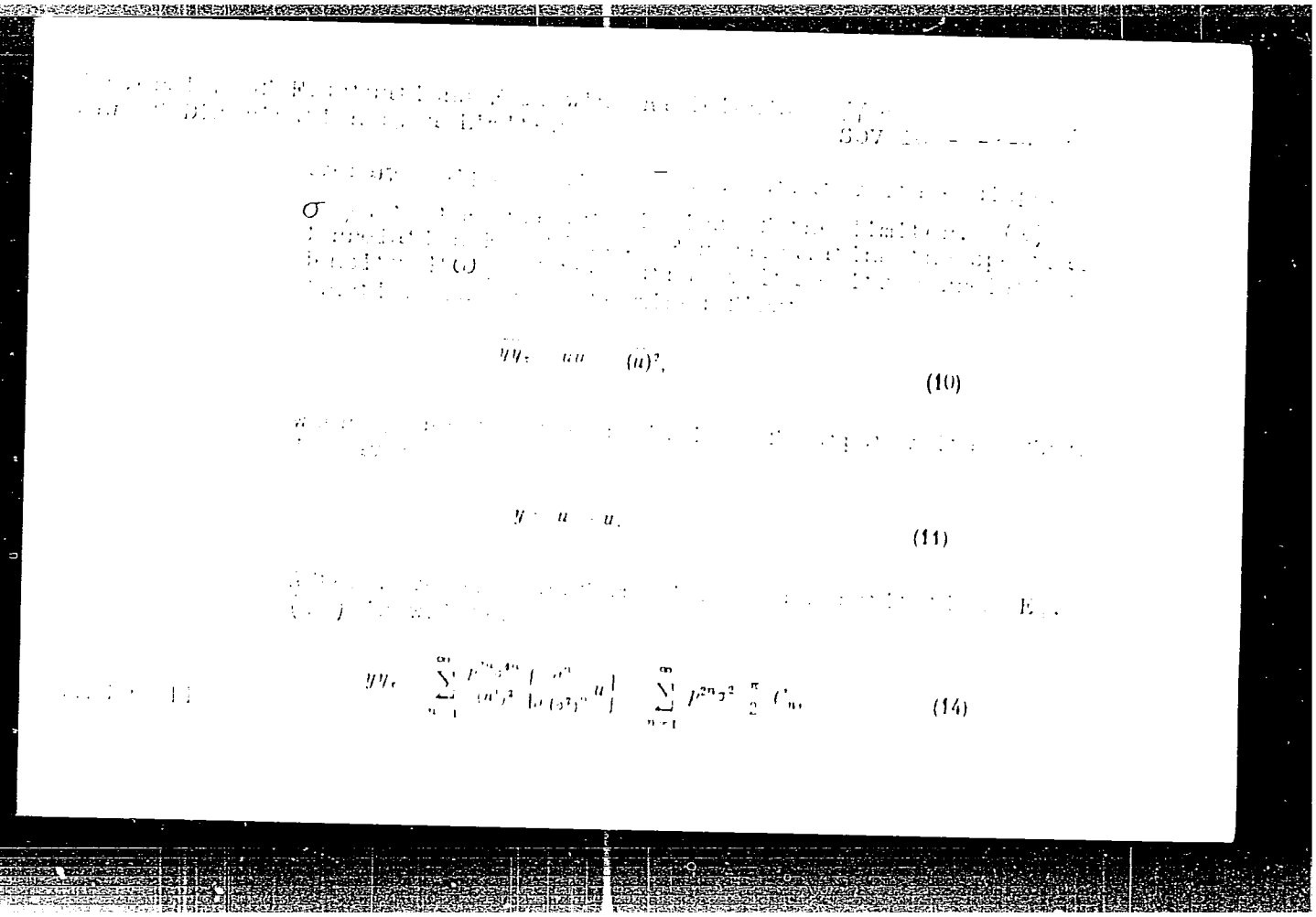


$$\bar{u} = (u_2 - u_1)\exp\left[\frac{c_1^2}{2} \right] + u_1.$$

$$\sigma^2(u) = u^2 \left[\int_u^\infty f(L) W(L)\, dL - \left(\int_u^\infty f(L) W(L)\, dL \right)^2 \right]$$

$$\sigma^2(u) = S^2\sigma^2 \left\{ 2\left[\exp\left(-\frac{c_1^2}{2} \right) - \exp\left(-\frac{c_2^2}{2} \right) \right] + \frac{\pi}{2} \left[\Phi(c_2) - \Phi(c_1) \right]^2 \right.$$

$$\left. - 2\sqrt{\frac{\pi}{2}}\, c_1 \left[\Phi(c_2) - \Phi(c_1) \right] \right\}. \qquad (8)$$



(10)

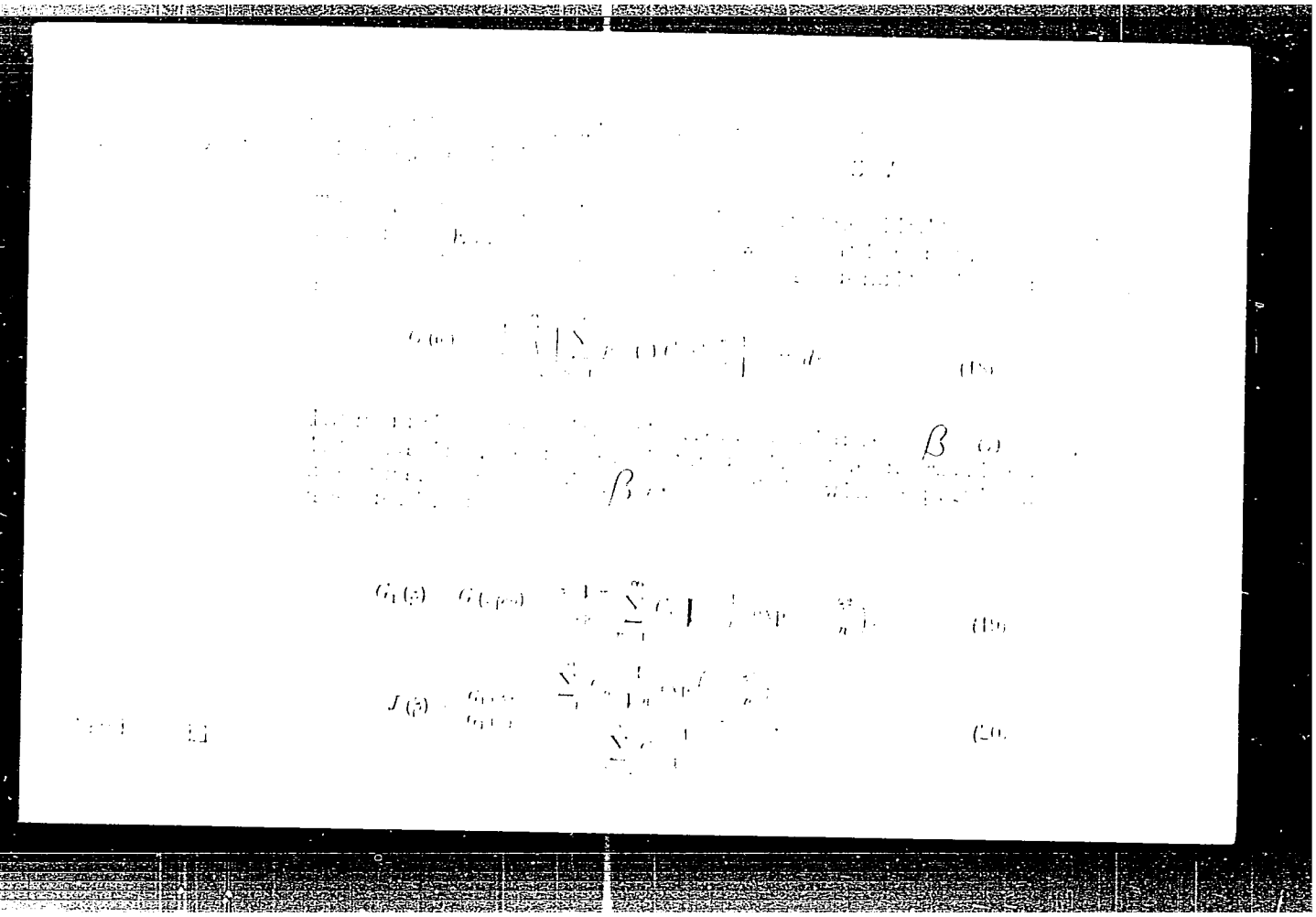
(11)

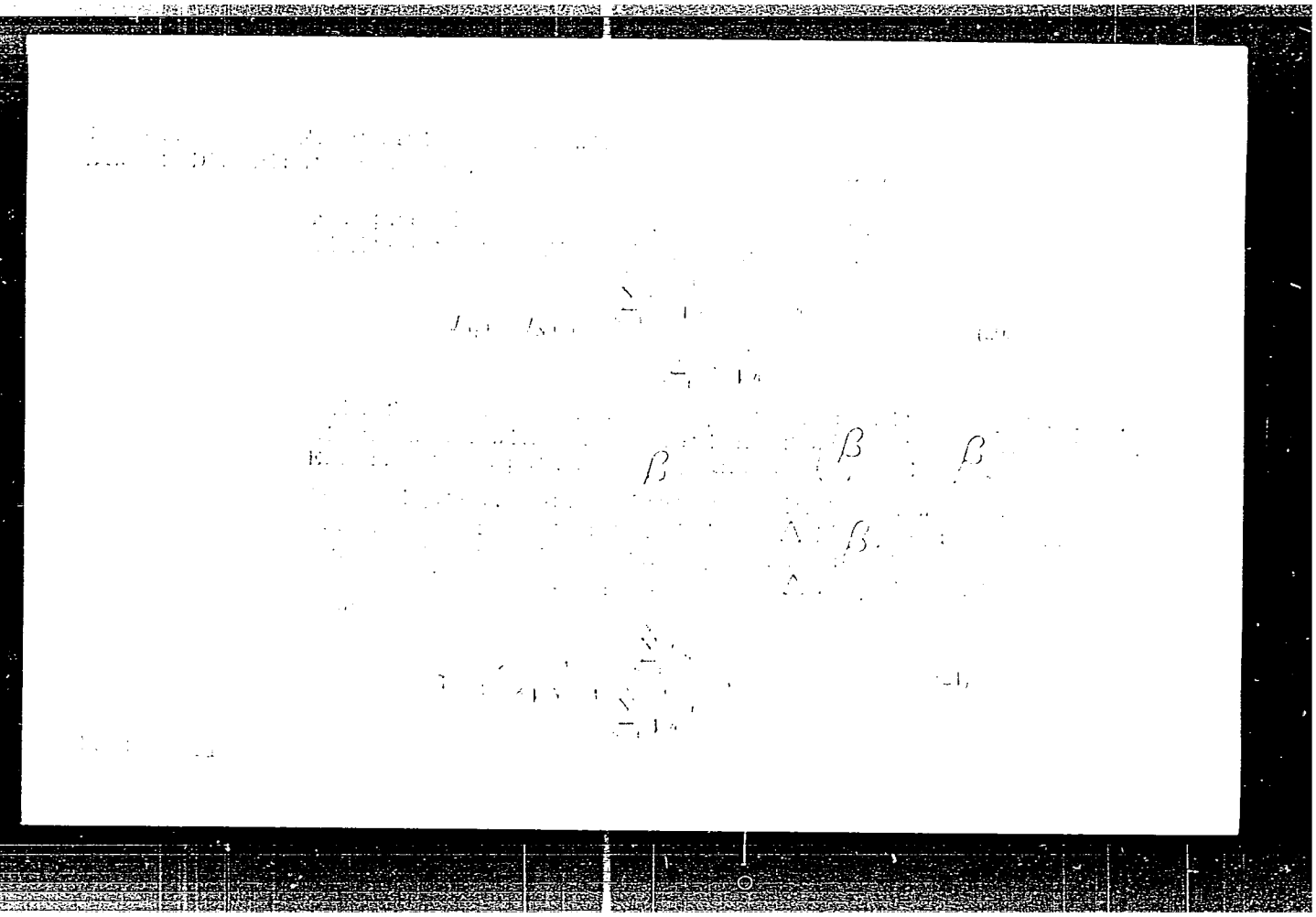
(14)

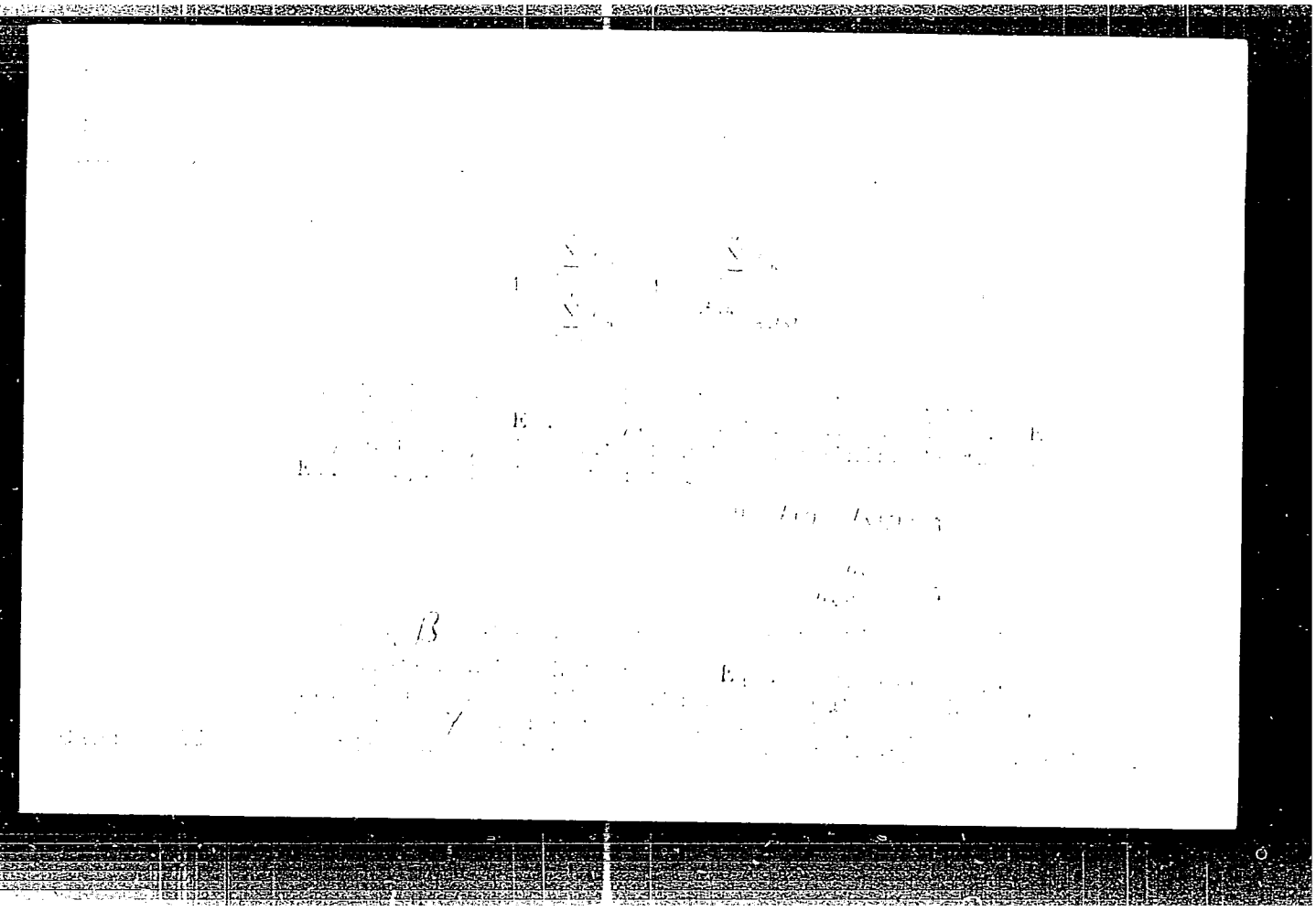
(15)

(16)

(17)







Conversion of Fluctuations Following Rayleigh's Law of Distribution by a Limiter

TT[illegible]
SOV/[illegible]

The appendix gives a presentation of two-dimensional function of Gaussian noise envelope density as a series of powers of parameter p. V. I. Bunimovich helped. There are 4 figures; and 3 references, 2 Soviet, and 1 U.S. The U.S. reference is: J. F. Barret, D. G. Lampard, An Expansion for Some Second Order Probability Distributions and Its Application to Noise Problems, IRE Trans. (Inf. Th.), IT-1,1,10.

ASSOCIATION: Institute of Radioengineering and Electronics AS USSR (Institute radiotekhniki i elektroniki AN SSSR)

SUBMITTED: May 19, 1959

Card 11/11

MOROZOV, V., inzh.

Pocket radio receiver. Radio no.6:33-35 Je '61. (MIRA 14:10)
(Transistor radios)

28531
S/109/61/006/009/014/018
D201/D302

6.9200

AUTHORS: Bunimovich, V.I., and Morozov, V.A.

TITLE: Estimating the frequency of a narrow band signal in the presence of white noise

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 9, 1961, 1574 - 1577

TEXT: In the present short communication, the authors show that the problem of determining the frequency of a signal on a background of noise is equivalent to that of position distribution of the maximum of a function which represents the superimposition of the stationary Gaussian noise and of a certain regularly occuring process. They analyze only the case when one parameter i.e. the frequency of the signal is unknown. The signal is assumed to be presented by

$$S(t) = C(t) \cos [\omega t - \theta(t)] \qquad (1)$$

and that as usual the envelope and "phase" $\theta(t)$ of the signal are

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Estimating the frequency of ...

slow varying functions of time and that the estimation is carried out by using the method of the maximum of the a posteriori probability, provided the shape of the curve of the a posteriori distribution of the parameter is nearly rectangular. From the well-known expression for the conditional probability density of the signal being detected from the background of noise, the expression for the parameter probability can be written as

$$L(\omega) = \exp\left[-\frac{1}{N_0}\int_0^T (x - S)^2\, dt\right] \qquad (2)$$

where T - period of observation; N_0 - spectral noise density; x - the wave to be detected.

$$u = \frac{q}{E}\int_0^T xS\, dt \qquad (3)$$

is then obtained, where E - the energy of the signal; q - quantity

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Estimating the frequency of ...

determining the S/n ratio

$$E = \int_0^T S^2 \, dt; \quad q = \sqrt{\frac{2E}{N_0}} \tag{4}$$

functions x and S can be written as

$$\begin{aligned} x &= n(t) + C(t)\cos[\omega_0 t - \theta(t)], \\ S &= C(t)\cos[\omega t - \theta(t)] = C(t)\cos\left[\frac{\nu t}{T} + \omega_0 t - \theta(t)\right], \end{aligned} \tag{5}$$

In it n(t) is the white noise; ω - parameter to be determined and ν is given by

$$\nu = (\omega - \omega_0)T. \tag{6}$$

The quantity ν_1 proportional to the deviation of ω from the true value of frequency ω_0 is taken as the parameter to be evaluated. Hence

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Estimating the frequency of ...

$$u_S(\nu) = \frac{q}{2E}\int_0^T C^2(t)\cos\frac{\nu t}{T}\,dt. \qquad (9)$$

the term $u_s(\nu)$ is a regular function of parameter ν_1 and $u_N(\nu)$ is a random function of ν. From the well known expression for the white noise correlation function, for the correlation function of "random" process $u_N(\nu)$ the approximate expression

$$\overline{u_N(\nu)\,u_N(\nu+\vartheta)} = \overline{u_N u_{N\vartheta}} = \frac{1}{2E}\int_0^T C^2(t)\cos\frac{\vartheta t}{T}\,dT. \qquad (11)$$

is obtainedm from which $\overline{u^2} = 1$ (11a). Hence the random component function u is stationary Gaussian random function of the parameter with is mean value equal to zero, dispersion equal to unity and a correlation coefficient determined by the shape of signal envelope according to (11). The problem of determining the frequency of a narrow-band signal (with one unknown parameter) on a background of white noise is equivalent to that of position distribution of the

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28531

Estimating the frequency of ... S/109/61/006/009/014/018
D201/D302

greatest of maxima of a function, representing the superimposition of a Gaussian stationary random process, and of a regular signal. The problem of maxima distribution has not, as yet, been resolved. The representation of it as given above is useful, nevertheless, in that it shows how to determine the frequency experimentally. There are 1 figure and 4 references: 3 Soviet-bloc and 1 non-Soviet bloc. The reference to the English-language publication reads as follows: W. Peterson, T.G. Birdsall, W.C. Fox, The theory of signal detectability, IRE Trans., 1954, PGIT-4, 171.

SUBMITTED: May 10, 1961

Card 5/5

MOROZOV, V., inzh.

Transistorized portable radio-phonograph combination. Radio [illegible] (MIRA [illegible]) 44-48 F '62.

(Phonograph) (Transistor radios)

34028
S/109/62/007/001/005/027
D246/D301

6,9400

AUTHORS: Bunimovich, V.I., and Morozov, V.A.

TITLE: Evaluating frequency and momentum of an input signal with unknown parameters, received on the background of white noise

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 1, 1962, 46-52

TEXT: Here the author assumes a narrow-band signal of the form:

$$S(t) = \sqrt{E}\, C(t) \cos[\omega t - \theta(t) - \varphi] \qquad (1)$$

where E - energy of the signal, C(t) - a normalized function which determines the form of the decay; the unknown parameters are the amplitude (or energy) and initial phase -- apart from the frequency. The method of maximum aposteriori probability is applied here, similarly to the authors' earlier paper (Ref. 1: Radiotekhnika i elektronika, 1961, 6, 9, 1974). The function of plausibility of the parameters can be written as:

$$L(\omega, \varphi, q) = \exp\left\{-\frac{q^2}{2} + q(u\cos\varphi + v\sin\varphi)\right\}, \qquad (4)$$

Card 1/3

Evaluating frequency and momentum ...

and the condition for the evaluation is that the exponent should be a maximum. Hence the authors find expressions for u and v in parametric form [u(ν) and v(ν)] and characteristics of their correlation coefficients. The analysis shows that the problem is equivalent to finding the spatial distribution of the greatest maximum of the decay function which is superposition of a Gaussian stationary random process $/u_N(t)/$ and the regular signal $/u_s(t)/$. The result is completely analogous to the findings of the previous paper. On this basis the distribution law of the optimum signal frequency was experimentally studied, but results are not given in this paper. This study made it possible to look into the problem of an asymptotic expression for evaluating frequency for sufficiently large values of q_0 which is given briefly. Also given the problem of evaluating the delay of the signal, the solution is the same as in the case of evaluating the frequency, apart from certain complexity of some of the expressions. Finally, the authors obtain an asymptotic expression for the dispersion of the delay. The results agree with those published in technical literature. There are 5 references: 3 Soviet

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34028

S/109/62/007/001/005/027
D246/D301

Evaluating frequency and momentum ...

-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: C.W. Helstrom, Statistical theory of signal detection, Pergamon Press, 1960; W. Peterson, T.G. Birdsall and W.C. Fox, The theory of signal detectability, IRE Trans., 1954. PGIT -4, 171.

SUBMITTED: May 19, 1961

Card 3/3

KOTEL'NIKOV, V.A.; APRAKSIN, L.V.; VOYTOV, V.O.; GOLUBTSOV, M.G.; DUBROVIN, V.M.; ZAYTSEV, N.M.; KORENBERG, Ye.B.; MINASHIN, V.P.; MOROZOV, V.A.; NIKITSKIY, N.I.; PETROV, G.M.; RZHIGA, O.N.; SHAKHOVSKOY, A.M.

Radar system used in the Venus probe of 1961. Radiotekh. i elektron. 7 no.11:1851-1859 N '62. (MIRA 15:11)

1. Institut radiotekhniki i elektroniki AN SSSR.
(Radar)
(Venus probes)

KOTEL'NIKOV, V.A.; DUBROVIN, V.M.; MOROZOV, V.A.; PETROV, G.M.; RZHIGA, O.N.; TRUNOVA, Z.G.; SHAKHOVSKOY, A.M.

Results of Venus radar probes conducted in 1961. Radiotekh. i elektron. 7 no.11:1860-1872 N '62. (MIRA 15:11)

1. Institut radiotekhniki i elektroniki AN SSSR.
(Venus probes)
(Radar)

42724

S/109/62/007/011/001/012
D295/D308

6.1200

AUTHORS: Bunimovich, V.I. and Morozov, V.A.

TITLE: The reception of weak signals by the method of binary integration

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 11, 1962, 1873 - 1879

TEXT: With the object of determining the minimum sampling frequency that would give practically the same detection reliability as the optimum-reception method, the method stated in the title is analyzed under the following assumptions: the signal to be detected is a stationary gaussian process, $U_S(t)$; the signal--to-noise ratio is much smaller than 1; noise is a stationary gaussian process, $U_N(t)$, having the same spectral density as the signal; the observation time is fixed and much larger than the signal correlation time. Under these conditions the integrator-output distribution will be approximately gaussian. From the second-order distribution of the signal envelope expressions are derived for the signal

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-to-noise ratio (and for the threshold level that maximizes it) at the integrator output both for the case of independent samples and for correlated samples (i.e. sufficiently high sampling frequency). By further assuming an exponential-type correlation function, a final expression is obtained for the output signal-to-noise ratio, written as the product of the S/N ratio for optimum reception and an energy loss factor. This factor is plotted as a function of the sampling frequency (normalized with respect to the correlation time) for an optimum threshold level, and as a function of threshold level (normalized with respect to noise intensity) for various sampling frequencies. Under practical conditions, it differs very little from unity, and, for a high sampling frequency, depends little on threshold. The investigation was carried out in connexion with development work of equipment for the 1961 radar contact with Venus. An important English-language reference is: J.V. Harrington, IRE.Trans., v. IT-1 no. 1, 1955, 1. There are 2 figures.

ASSOCIATION: Institut radiotekhniki i elektroniki AN SSSR (Radio Engineering and Electronics Institute, AS USSR)

S/109/62/007/011/001/012
D295/D308

The reception ...

SUBMITTED: July 7, 1962

Card 3/3

MOROZOV, V.A.; TRUNOVA, Z.G.

Weak signal analyzer used in radar Venus probes in 1961.
Radiotekh. i elektron. 7 no.11:1880-1889 N '62. (MIRA 15:11)

1. Institut radiotekhniki i elektroniki AN SSSR.
(Radar)
(Venus probes)

YERGANZHIYEV, N.A.; KOPYLOV, P.M.; MOROZOV, V.A.

Control of the level of the video signal in color television stations. Elektrosviaz' 16 no.9:70-72 S '62. (MIRA 15:9)
(Color television)

KOTEL'NIKOV, V.A., akademik; DUBROVIN, V.M.; KISLIK, M.D.; KORENBERG, Ye.B.; MINASHIN, V.P.; MOROZOV, V.A.; NIKITSKIY, N.I.; PETROV, G.M.; RZHIGA, O.N.; SHAKHOVSKOY, A.M.

Radar observation of Venus. Dokl.AN SSSR 145 no.5:1035-1038 '62. (MIRA 15:8)

1. Institut radiotekhniki i elektroniki AN SSSR.
(Radio astronomy) (Venus (Planet))

KOTEL'NIKOV, V. A., akademik; GUS'KOV, G. Ya.; DUBROVIN, V. M.; DUBINSKIY, B. A.; KISLIK, M. D.; KORENBERG, Ye. B.; MINASHIN, V. P.; MOROZOV, V. A.; NIKITSKIY, N. I.; PETROV, G. M.; PODOPRIGORA, G. A.; RZHIGA, O. N.; FRANTSESSON, A. V.; SHAKHOVSKOY, A. M.

Radar tracking of the planet Mercury. Dokl. AN SSSR 147 no.6: 1320-1323 D '62. (MIRA 16:1)

1. Institut radiotekhniki i elektroniki AN SSSR.

(Mercury(Planet)) (Radar in astronomy)

L 10004-63 BDS—AFFTC/ASD—Pu-4

ACCESSION NR: AP3001135 S/0106/63/000/006/0034/0042

53

AUTHOR: Morozov, V. A.

TITLE: Analysis of the series correction circuit for wide-band amplifiers 25

SOURCE: Elektrosvyaz', no. 6, 1963, 34-42

TOPIC TAGS: wide-band amplifier, amplifier correction

ABSTRACT: The series correction circuit is reduced to an equivalent circuit and analyzed theoretically. Frequency-response, transfer, and phase characteristics are examined for various circuit parameters and used to determine the limits of applicability of the series correction circuit for tv purposes. Some findings of I. G. Mamonkin (Pulse Amplifiers, Gosenergoizdat, 1958) are criticized. Near-optimum correction is connected with a definite capacitance distribution in the circuit. Orig. art. has: 30 formulas, 6 figures, and 3 tables.

ASSOCIATION: none

SUBMITTED: 09Apr62 DATE ACQD: 01Jul63 ENCL: 00

SUB CODE: CO NO REF SOV: 005 OTHER: 000

Card 1/1

MOROZOV, V.A.

AID Nr. 977-4 27 May

MEASURING EQUIVALENT NOISE TEMPERATURE OF PERIODICALLY PULSED RADIATION (USSR)

Morozov, V. A., and L. S. Tyufyakin. Izmeritel'naya tekhnika, no. 4, Apr 1963, 33-34. S/115/63/000/004/006/011

A refinement in radiometer circuitry is described which substantially decreases rms errors in equivalent noise temperature measurements. Specifically the modification applies when measuring low-temperature radiation (i.e., noise source temperature ≪ radiometer receiver internal noise), where the radiation is of a periodically pulsed rather than continuous nature. A master oscillator and synchronizer are added to the receiver, which generate a gate at double the repetition frequency of the incoming radiation pulses. This gate switches the receiver via a ferrite circulator, first to the signal input and then to a calibrated noise source, each time gating the

Card 1/2

AID Nr. 977-4 27 May

MEASURING EQUIVALENT NOISE [Cont'd] S/115/63/000/004/006/011

IF amplifier as well, so that only signal pulses alternating with calibrated noise pulses pass through the receiver. These are detected and fed to a narrowband amplifier tuned to 325 cps and having a 6-cps bandpass, and then to a low-pass filter, after which the signals are available for further treatment or observation. With this gating technique the rms temperature error σ_T is given by

$$\sigma_T = \frac{1}{\sqrt{2}} \frac{T^\circ_{rec}}{\sqrt{\Delta f \tau}} \sqrt{q} ,$$

where T°_{rec} is equivalent receiver noise temperature, Δf is effective IF bandwidth, τ is the time constant of the output filter, and q is the duty factor of the unknown pulsed noise signal. It is assumed that $T^\circ_{rec} \gg$ both calibration and signal noise temperatures and $q \gg 1$. A sample calculation yields an rms error of 6°K for the gated method, compared to 150°K for the same parameters but without gating. Rms temperature error from an experimental measurement with the gating method showed close agreement with predicted error.

[SH]

Card 2/2

KOTEL'NIKOV, V.A., akademik; DUBROVIN, V.M.; [illegible], P.A.; KISLIK, M.D.; KUZNETSOV, B.I.; LISHIN, I.V.; MOROZOV, [illegible]., PETROV, G.M.; RZHIGA, O.N.; SYTSKO, G.A.; SHAKHOVSKOY, A.M.

Radar observations of Venus in the Soviet Union during 1962. Dokl. AN SSSR 151 no.3:532-535 Jl '63. (MIRA 16:9)

1. Institut radiotekhniki i elektroniki AN SSSR.
(Venus (Planet)) (Radar in astronomy)

ACCESSION NR: AP4024726 S/0109/64/009/003/0439/0448

AUTHOR: Morozov, V. A.

TITLE: One method of detecting weak signals in noise

SOURCE: Radiotekhnika i elektronika, v. 9, no. 3, 1964, 439-448

TOPIC TAGS: radio astronomy, signal detection, signal noise separation

ABSTRACT: A modification of the binary-integration method for receiving very weak (radio-astronomic) signals is theoretically considered. It is suggested that a narrow-band low-pass filter be introduced between the detector and the comparison circuit in the original binary-integrator scheme (I. V. Harrington, IRE Trans., 1955, IT-1, 1, 1). This modification substantially reduces the high speed required and permits using the binary-integration method for reception of a signal band 10^6-10^7-cps wide. In detecting a weak signal in white noise by the long-time integration method, a system consisting of a matched filter, a linear

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ACCESSION NR: AP4024726

detector, a narrow-band low-pass filter, and a binary integrator is practically equivalent to an optimum receiver that forms the likelihood ratio. The frequency response of a matched filter is similar to the shape of the incoming-signal spectrum. V. I. Bunimovich's and V. A. Morozov's article in "Radiotekhnika i elektronika," 1962, v. 7, no. 11, 1873, is criticized. Orig. art. has: 2 figures and 43 formulas.

ASSOCIATION: none

SUBMITTED: 01Feb63 DATE ACQ: 10Apr64 ENCL: 00

SUB CODE: CO NO REF SOV: 007 OTHER: 006

Card 2/2

L 34879-65 EWT(l)/EEC(t) Peb IJP(c)
ACCESSION NR: AP5005033 S/0051/65/018/002/0198/0205

AUTHOR: Morozov, V. A.

TITLE: Contribution to the theory of resonant rotational Raman scattering of light. I. Intensity of vibrational-rotational lines

SOURCE: Optika i spektroskopiya, v. 18, no. 2, 1965, 198-205

TOPIC TAGS: Raman scattering, resonance scattering, vibrational rotational line, line intensity, polarizability, diatomic molecule

ABSTRACT: On the basis of the analysis and detailed study of the Kramers-Heisenberg-Weisskopf formula, the author has obtained expressions for matrix elements of the components of the polarizability tensor and for the intensity of the vibrational-rotational lines of the Raman scattering spectrum of a diatomic molecule in the case of rotational resonance. The antisymmetrical part of the matrix elements of the polarizability tensor give rise to magnetic dipole scattering, and thus behave like sources of spontaneous magnetic radiation. The expression for the intensity of scattering of a molecule that is freely oriented in space is derived

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from the squares of the moduli of the matrix elements of the polarizability tensor, averaged over all the initial magnetic quantum numbers. The dependence of the obtained expression on the frequency of the incident light and on the damping of the virtual states of the molecule is investigated. "I thank P. O. Shorygin and L. L. Krushinskiy for numerous hints and a discussion of the results." Orig. art. has: 2 figures and 7 formulas.

ASSOCIATION: None

SUBMITTED: 29Nov63 ENCL: 00 SUB CODE: OP

NR REF SOV: 006 OTHER: 005

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L 21011-66 EWT(1) LJP(c) GG/WW

ACCESSION NR: AP5017892 UR/0051/65/019/001/0035/0040
535.375.001.1

AUTHOR: Morozov, V. A.

TITLE: Contribution to the theory of resonant rotational Raman scattering

SOURCE: Optika i spektroskopiya, v. 19, no. 1, 1965, 35-40

TOPIC TAGS: Raman scattering, resonance scattering, molecular spectrum, diatomic molecule, light polarization

ABSTRACT: The first part of the article was published in Opt. i spektr. v. 18, 198, 1965. In this part, formulas are derived for the depolarization and for the reversal coefficients of the rotation-vibration Raman lines of diatomic molecules for the case of rotational resonance. The variation of the derived expressions with the frequency of the incident light is investigated and explained for different values of the radiation lifetime of the virtual electronic-vibrational state of the molecule. "The author thanks P. P. Shorygin and L. L. Krushinskii for advice and a discussion of the results." Orig. art. has: 4 figures and 9 formulas.

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L 21011-66

ACCESSION NR: AP5017892 O

ASSOCIATION: None

SUBMITTED: 29Apr64 ENCL: 00 SUB CODE: OP

NR REF SOV: 003 OTHER: 001

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L 5424-66 EWT(1)/T IJP(c)

ACCESSION NR: AP5019766 UR/0051/65/019/002/0289/0291

44,55 44,55 535.338.001.1 43

AUTHOR: Morozov, V. A.; Shorygin, P. P. B

TITLE: Contribution to the theory of radiative width of spectral lines 21, 44,55

SOURCE: Optika i spektroskopiya, v. 19, no. 2, 1965, 289-291

TOPIC TAGS: spectral line, line width, photon, spectral energy distribution, light emission

ABSTRACT: This is a continuation of earlier work [Abstracter's note: the reference to the earlier paper has been omitted from the source as a result of a printer's error], where a system of equations for the U matrix was derived with account of exchange of virtual photons between overlapping intermediate levels. The present paper considers the influence of this phenomenon on the change in the spontaneous-emission line shape. The spontaneous-emission line contours are calculated for a molecule with two close excited levels remote from the ground level, first neglecting and then taking into account an exchange of photons between the excited levels. Allowance for the exchange is shown to produce a noticeable shift in the line peak and a strong distortion of its symmetry. Orig. art. has: 3 figures and 15 formulas.

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L 5424-66
ACCESSION NR: AP5019766

ASSOCIATION: none

SUBMITTED: 30Nov64 ENCL: 00 SUB CODE: OP

NR REF SOV: 000 OTHER: 001

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Card 2/2

L 16739-66 EWT(m)/EWP(w)/EWP(v)/T/EWP(t)/EWP(k) JD/HM

ACC NR: AR5018397 SOURCE CODE: UR/0196/65/000/006/N018/N018

AUTHOR: Astaf'yev, N.N.; Morozov, V.A.

58
B

ORG: none

TITLE: Effect of impulse-arc surfacing on the mechanical properties of coating 44,55,18 18 44,55 18

SOURCE: Ref. zh. Elektrotekhnika i energetika, Abs. 6N121

REF SOURCE: Dokl. Nauchn. konferentsii professorov i prepodavat. Kishinevsk. s.-kh. in-ta, 1963. Kishinev, Kartya Moldovenyaske, 1964, 216-223

TOPIC TAGS: ~~welding, arc welding, welding equipment, welding technology~~, metal surfacing, electric arc, electronic rectifier, heat effect, metallographic examination, solid mechanical property / VAGG-12-600M ~~electronic~~ rectifier

TRANSLATION: An analysis was made of voltage stability and of the choke parameters with regard to the quality of the coating in impulse-arc surfacing. The power source was either a VAGG-12-600M rectifier or a special comprehensive unit. Inasmuch as the voltage curve of the latter is more even and more stable, the hardness, adherence, wear resistance and durability of the plating proved to be higher than in cases of feeding by rectifier. Metallographic research showed that the number of pores and cracks decreased and the area of thermal effect became smaller. A study was made of the effect of the induction variations in a RST-24 choke and a toroid with a core made from light

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L 16739-66

ACC NR: AR5018397

carbon wire 0.5 mm in diameter. The optimal value of the RST-24 choke inductance in surfacing with a 1.6 mm wire and a feeding from a VAGG-12-600M rectifier was 0.11 - 0.15 millihenry. With an identical static inductance of the choke and toroid, the number of loops in the toroid must be 6 times greater. The core of the choke may be made of steel with great loss in hysteresis. V. Gorskiy.

SUB CODE: 13,09/ SUBM DATE: none

Card 2/2 vmb

L 6444-65 EWT(d) IJP(c)

ACCESSION NR: AP5019913 UR/0055/65/000/004/0013/0021
519.34

AUTHOR: Morozov, V. A. 55

TITLE: Use of the regularization method in solving an incorrect problem

SOURCE: Moscow. Universitet. Vestnik. Seriya 1. Matematika, mekhanika, no. 4, 1965, 13-21

TOPIC TAGS: integral equation, operator equation, approximation method

ABSTRACT: The integral equation

$$+\int_0^b K_2(x, z, \eta)\, p(x, \eta)\, d\eta = \varphi(x, z), \quad -a \leqslant x \leqslant a, \ 0 \leqslant z \leqslant b. \qquad (1)$$

which arises in calculations for dam construction by the arch-cantilever method, is studied. An effective approximate solution is possible by A. N. Tikhonov's regularization method [Tikhonov, A. N., *DAN SSSR*, 151, No. 3, 1963, 501-504]. Definitions are given for weakly and strongly regularized families of approximate solutions under the condition that the problem of solving (1) is incorrect; that is, that the

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ACCESSION NR: AP5019913

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reflection of the class of the right members of (1) in the class of solutions may be discontinuous when the inverse reflection is continuous, given that the kernels are continuous. It is proved that the variation problem then arising has a solution that is unique. The convergence of the solution is evaluated. "The author is sincerely grateful to A. N. Tikhonov[55] and A. D. Gorbunov[55] for their valuable comments." Orig. art. has: 60 formulas.

ASSOCIATION: Kafedra vychislitel'noy matematiki MGU (Department of Computer Mathematics, MGU)

SUBMITTED: 06Jan64 ENCL: 00 SUB CODE: MA

NO REF SOV: 006 OTHER: 000

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L 33161-66 EWT(1) IJP(c) WW/GG

ACC NR: AR6016181 SOURCE CODE: UR/0058/65/000/011/D014/D014

47

B

AUTHOR: Morozov, V. A.

TITLE: Contribution to the theory of rotational Raman scattering of light

SOURCE: Ref. zh. Fizika, Abs. 11D103

REF SOURCE: Tr. Komis. po spektroskopii. AN SSSR, t. 3, vyp. 1, 1964, 61-66

TOPIC TAGS: light scattering, Raman scattering, electron energy level, ground state, excited state, temperature dependence, depolarization, resonance scattering

ABSTRACT: An analysis is presented of the Kramers-Heisenberg formula with account of the rotational structure of the vibrational levels of the ground and excited electron states. The temperature dependence of the distribution of the intensity of the vibrational-rotational band over the O, Q, and S branches is considered. Formulas are obtained for the intensity of the components of the rotational Raman spectrum and for the degree of depolarization in the case of resonant excitation. The variation of the intensity of the components of the branches of the vibrational-rotational bands are traced as functions of the frequency of the exciting light and of the magnitude of the damping of the virtual states of the molecule. It is shown that the Placzek theorem, that the total intensity of the vibrational-rotational transition is independent of the value of the rotational quantum number of the initial state, is not valid for the case of resonance excitation. [Translation of abstract]

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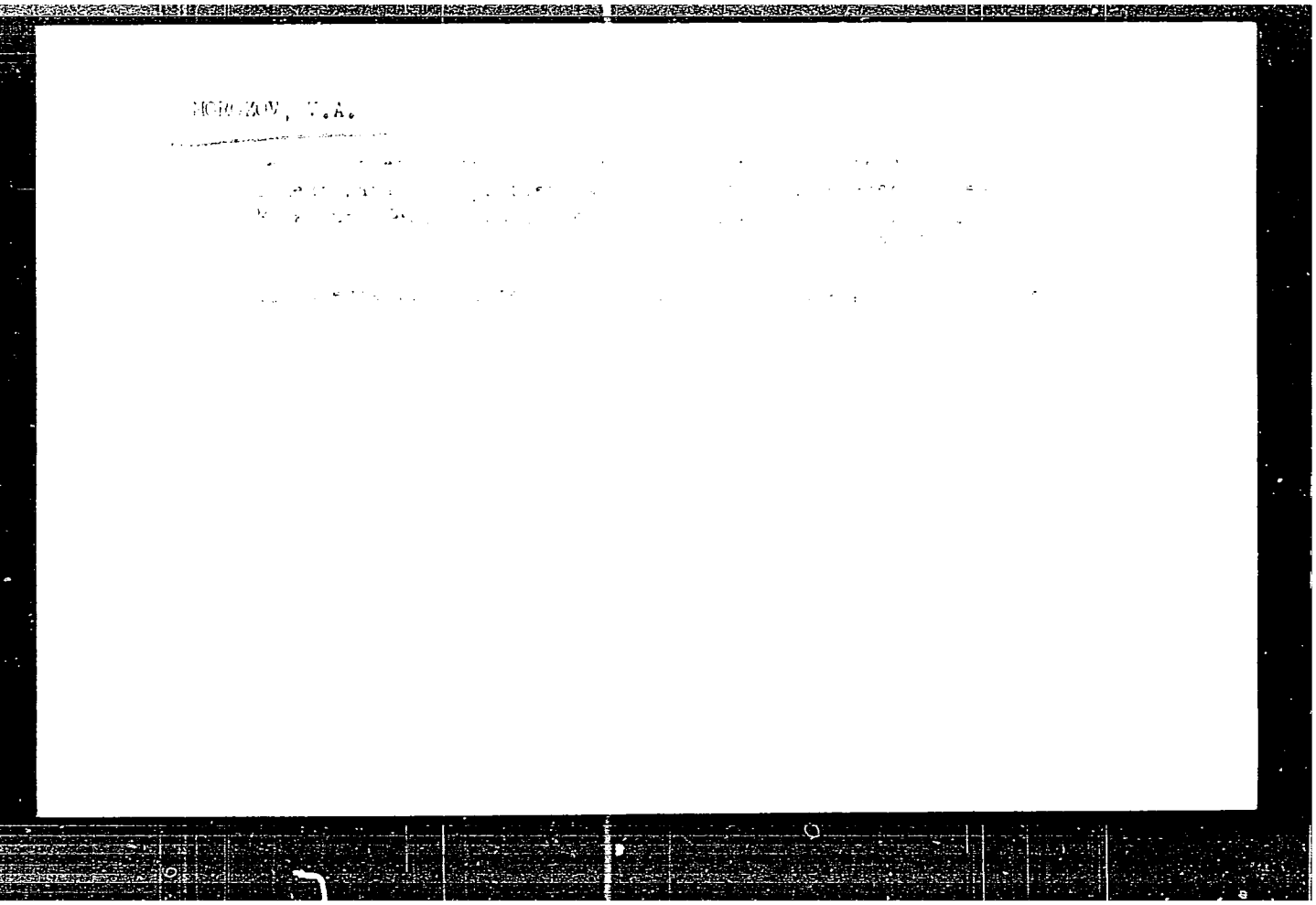

L 24306-66 EWT(1) IJP(c) WW/GG

ACC NR: AP6006995 SOURCE CODE: UR/0051/66/020/002/0214/0223

AUTHORS: Morozov, V. A.; Shorygin, P. P. 40 38

ORG: none

TITLE: Contribution to the theory of resonant transformation of light by molecules with consideration of two intermediate energy levels

SOURCE: Optika i spektroskopiya, v. 20, no. 2, 1966, 214-223

TOPIC TAGS: light scattering, secondary emission, molecular interaction, light absorption, quantum electrodynamics, quantum field theory

ABSTRACT: The transformation of light (21) by molecule is examined, taking into account four of its energy levels (two intermediate levels), on the basis of the Heitler-Ma solution of the Schrodinger equation in the energy representation for a system consisting of a molecule and a quantized radiation field interacting with it (Proc. Roy. Ir. Ac. v. 52, 109, 1949). Interest in this problem has lately been increas- 2

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ing in connection with the study of secondary emission modulation effects. Expressions are obtained for the intensity and shape of the absorbed and secondary radiation lines with allowance for virtual photon exchange between overlapping intermediate levels. In cases where this exchange is negligible, the resulting formulas coincide with similar ones of V. Weisskopf (Ann. Physik. v. 9, 23, 1931). The technique employed is compared with other quantum electrodynamic methods of considering this transformation of light by molecules. The relationship between absorbed and secondary radiation is discussed. The authors thank L. L. Krushinskiy and L. N. Ovander for a discussion of the results. Orig. art. has: 5 figures and 41 formulas.

SUB CODE: 20/ SUBM DATE: 30Nov64/ ORIG REF: 007/ OTH REF: 010

MOROZOV, V.D.

Profile cutters with spiral teeth and rake angles. [illegible]. inform.biul. LPI no.11:[illegible] 1954. (MLRA 8:11)
(Metal-cutting tools)

MOROZOV, V.D., gornyy inzh.

New method of standardizing drilling and blasting work. Gor.zhur. no.2:32-34 F '61. (MIRA 14:4)

1. TSentral'noye byuro promushlennykh normativov po trudu, Moskva.
(Boring) (Blasting)

MOROZOV, V.D., inzh.

Establishing uniform norms of development in mining. Shakht. stroi. 5 no.8:22-24 Ag '61. (MIRA 16:7)

(Mining engineering)

TOKAREV, I.A.; ROMANOV, V.A.; YANOVSKIY, I.I.; ARTSIMOVICH, V.N.; MOROZOV, V.D.

Bit for drilling with a perforator. Gor.zhur. no.8:72 Ag '62. (MIRA 15:3)

(Rock drills)

ZEL'TSER, V.M.; KULAGIN, V.D.; MOROZOV, V.D.

Mechanization of auxiliary operations on the 280 mill at the Kirov Plant in Makeyevka. Mat. i gornorud. prom. no.6:71-72 N-D '65. (MIRA 18:12)

ACC NR: AT7002126 (A) SOURCE CODE: UR/0000/66/000/000/0474/0480

AUTHOR: Morozov, V. D.

ORG: none

TITLE: Model studies of stress distribution in slopes

SOURCE: Vsesoyuznaya konferentsiya po polyarizatsionno-opticheskomu metodu issledovaniya napryazheniy. 5th, Leningrad, 1964. Polyarizatsionno-opticheskiy metod issledovaniya napryazheniy (Polarizing-optical method of investigating stresses); trudy konferentsii. Leningrad, Izd-vo Leningr. univ., 1966, 474-480

TOPIC TAGS: stress distribution, stress analysis, model

ABSTRACT: A special device using the optical behavior of material in polarized light has been constructed to permit direct observation of stresses in strained optically active material of large models (up to 1.2 m^2). Tests were made for various angles and heights of slope to study stability of slopes and the stress distribution. Results show that this technique of observation permits investigation of the most dangerous areas (from the viewpoint of stability) and observation of the shape and position of maximum-stress lines in the slope. The curve of maximum stress smoothes out and approaches the line of slope as the slope angle decreases. The stress distribution in the slope changes within a radius equal to the height of the slope. Beyond this, the distribution is similar to that in the unaffected mass. The

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